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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,530	03/30/2001	Taizo Miyazaki	381NP/49752	1230

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EXAMINER

WAKS, JOSEPH

ART UNIT PAPER NUMBER

2834

DATE MAILED: 06/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/806,530

Applicant(s)

MIYAZAKI ET AL.

Examiner

Joseph Waks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☒ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. PCT/JP99/05279, filed on 28 of September 1999. ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the reaction composition control means, the root pipe, the reaction product output port, the two conveying pipes with at least one pipe connected to the rear stage, and use pipe selection means as recited in claim 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the reaction composition control means, the root pipe, the reaction product output port, the two conveying pipes with at least one pipe connected to the rear stage, and use pipe selection means.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

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pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. **Claim 4** is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The reaction composition control means, the root pipe, the reaction product output port, the two conveying pipes with at least one pipe connected to the rear stage, and use pipe selection means are not shown in the drawings and are not supported by the specification.

6. **Claim 4** is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. For the reasons provided above one skilled in the art would not be able to make and/or use the invention. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 13, 14, and 16-21** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

- (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
- (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

10. **Claims 1, 5, and 6** are rejected under 35 U.S.C. 102(b) as being anticipated by **Frei (US 3,795,816)**.

Frei discloses in Figure 1 invention as claimed: an energy generating system comprising a front stage reaction means 6, 24, 25 receiving a row material in a form of fuel, water and air to generate a reaction product (flue gas) by receiving mechanical power from the outside from the compressor 16 and pump 21, and a rear stage reaction means 11 receiving the reaction product to generate energy, including the first stage comprising energy converting means 24, 25 converting mechanical energy to electric energy, wherein the front stage reaction means and rear reaction means are connected through each other through a heat transfer means 6.

11. **Claims 1-3, 5** are rejected under 35 U.S.C. 102(b) as being anticipated by **Wilson (US 4,382,189)**.

Wilson discloses in the Figure invention as claimed: an energy generating system comprising a front stage reaction means 13, 15, 17 receiving a row material in form of water to generate a reaction product in form of hydrogen by receiving mechanical power from the outside (i.e. breaking), and a rear stage reaction means 25 receiving the reaction product to generate energy including means 13 converting mechanical energy to electric energy.

12. **Claims 1-5, 7-9, and 11** are rejected under 35 U.S.C. 102(b) as being anticipated by **Sakamoto et al. (JP08185880 A)**.

Sakamoto et al. disclose in the Figures 1 and 2 invention as claimed: an energy generating system comprising a front stage reaction means 1 receiving a raw material to generate a reaction product by receiving mechanical power from the outside, and a rear stage reaction means 2 receiving the reaction product to generate energy including means 13 converting mechanical energy to electric energy (Re paragraphs 001-014, 0017, 0026, 0031, and 0040)

13. **Claims 1-3, 6** are rejected under 35 U.S.C. 102(b) as being anticipated by **Rosen et al.** (WO 99/19161).

Rosen et al. disclose in the Figures 1 and 2 invention as claimed: an energy generating system comprising a front stage reaction means 32 receiving a raw material in form of gasoline and air to generate a reaction product in form of hydrogen, CO, CO₂ and water by receiving mechanical power from the outside (i.e. pumping and compressing), and a rear stage reaction means 22 receiving the reaction product to generate energy including means converting mechanical energy to electric energy.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Sakamoto et al.** (JP 08185880 A).

Sakamoto et al. disclose the system essentially as claimed. However, **Sakamoto et al.** do not disclose the variable drive valve for varying the compression ratio.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the variable drive valve for varying the compression ratio since it involves a known and commonly practiced method in the art of combustion engines.

16. **Claims 12-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sakamoto et al. (JP 08185880 A)** in view of **Ankersmit et al. (US 5,417,051)**.

Sakamoto et al. disclose the system essentially as claimed. However, **Sakamoto et al.** do not disclose the heat transfer means for preheating the raw material to the engine using exhaust heat from the engine.

Ankersmit et al. disclose the method of preheating the raw material 15 to the engine T using exhaust heat 7 from the engine, thus recuperating part of the exhaust heat into the process.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the system as taught by **Sakamoto et al.** And provide a heat exchanger as taught by **Ankersmit et al.** for the purpose of recuperating part of the exhaust heat into the process. The fuel selecting means is an obvious design choice since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Re claim 15, the establishment of the distance between the heat exchanger and the engine and the distance between the raw material heating would be an obvious choice of design based on the desired heating efficiency and equipment arrangement.

17. **Claims 16-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sakamoto et al. (JP 08185880 A)** in view of **Kato et al. (JP 06219707 A)**.

Sakamoto et al. disclose the system essentially as claimed. However, **Sakamoto et al.** do not disclose the system heating and temperature control means.

Kato et al. disclose in paragraphs 0013-0016 the means for varying the supply ratio of plurality of raw materials and using the engine compression and ignition for heating and temperature control.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the system as taught by **Sakamoto et al.** and to provide the system heating and temperature control means as taught by **Kato et al.** for the purpose of reaching the self-ignition temperature when the engine is an ignition compression engine.

18. **Claims 7-9, 11, 12, 14, and 19-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rosen et al.** (WO 99/19161) in view of **Lowther et al.** (US 4,965,052).

Rosen et al. disclose the system essentially as claimed. However, **Rosen et al.** do not disclose the front stage reaction means being a heating engine.

Lowther et al. disclose heat engine used as an "engine reactor" for the purpose of combining hydrocarbons and oxygen or water vapors (Re column 12, lines 17—23) to produced an enriched fuel for other use while simultaneously generating a mechanical output.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the system as taught by **Rosen et al.** and to provide the front stage reaction means in form of the heating engine as taught by **Lowther et al.** for the purpose of simplifying the system by combining the reforming process and power generation in a single machine.

Prior Art

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19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Waks whose telephone number is (703) 308-1676. The examiner can normally be reached on Monday through Thursday 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor R Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-1341 for regular communications and (703) 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.


JOSEPH WAKS
PRIMARY PATENT EXAMINER
TC-2800

JW
June 5, 2002